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NOTES ON BEHAVIOUR AND PLUMAGE DIMORPHISM IN LAGDEN'S
BUSH SHRIKE *MALACONOTUS LAGDENI*

Lagden's Bush Shrike *Malaconotus lagdeni* has rarely been recorded in East Africa (East Africa Natural History Society 1982). During September 1984 I observed this species on three occasions in the Bwindi Forest (formerly known as the Impenetrable Forest), southwestern Uganda. These observations may be of interest since virtually nothing seems to be known of the habits of this uncommon bird (Bannerman 1939, Chapin 1954, Mackworth-Praed & Grant 1970, Lippens & Wille 1976). An hitherto unknown plumage variant is also described and discussed.

The species was first observed at 2300 m on the northern perimeter of the Forest Reserve near Ruhizha Forest Station (1.02S, 29.46E), in patchy, disturbed forest on a steep hillside. The bird appeared a very large and thickset bush shrike with an extremely heavy black bill, immediately recognizable as *M. lagdeni* by its striking black, yellow-tipped inner secondaries and wing coverts. The face, crown, nape and upper mantle were dark grey, sharply demarcated from the dark green lower mantle. Below, the throat and upper breast were bright orange-yellow, merging into yellow on the belly and under-tail coverts; the flanks were pale green. The bird was perched on a stout horizontal branch, against which it was beating a large, uniformly green insect, probably a katydid (Orthoptera: Tettigonidae).

A second bush shrike alighted nearby a moment later. It was of identical size and shape to the first, but of quite different plumage. The upperparts resembled those of the first bird, except that the crown, face and upper mantle were brownish-grey, this colour merging into that of the lower mantle. The underparts, however, were almost entirely clear, uniform white; the only colour was a little pale yel-

low on the under tail coverts and thighs and, again, a green wash on the flanks.

The two birds were watched as they moved together through the trees, keeping to the middle levels. They flew heavily, the wings making a loud flapping noise, from one large branch to another, bouncing rapidly along the boughs after alighting. Both birds called often, uttering a loud, harsh grating *chaarr, chaarr*.

On two subsequent occasions single *M. lagdeni*, both of normal plumage, were observed. One was seen on 4 September high in a tree in valley forest at 2100 m near the Kaserasere River (1.03S, 29.45E); it too was dispatching what appeared to be a katydid by hitting it vigorously against a stout branch. Another, again at 2300 m, was moving quietly through small trees in secondary growth on a hillside just north of Ruhizha Forest Station. These sightings were respectively 1.6 and 0.7 km from the first; three sightings within a small area suggest that at least in Bwindi *M. lagdeni* may not be as scarce as has been supposed (Britton 1980); it is also encouraging that the birds appear to be utilizing even areas where the forest has undergone considerable disturbance.

DISCUSSION

The colouration of the second bird seen is interesting. The crown and face accord with Chapin's description of juvenile plumage (Chapin 1954). However, the beak was black, not grey-brown as in juveniles. Chapin (1954) does not clearly describe the colour of the underparts in young birds, but Lippens & Wille (1976) remark that they have "white spots on the throat and belly, and have the breast grey-white, later marked with horizontal bars", quite unlike the uniform white of the bird observed. The colours of the bill and underparts indicate that the bird was not a juvenile but an adult with unusual plumage.

Plumage polymorphism is a well known phenomenon in *Malaconotus*, and has been documented and discussed by Moreau & Southern (1958) and Hall, Moreau & Galbraith (1966). The latter authors divide the members of the genus dealt with into two groups, one of large species (the Uluguru Bush Shrike *M. alius*, Grey-headed Bush Shrike *M. blanchoti*, Fiery-breasted Bush Shrike *M. cruentus*, Green-breasted Bush Shrike *M. gladiator*, and Lagden's Bush Shrike) and one of small species (Many-coloured Bush Shrike *M. multicolor*, Black-fronted Bush Shrike *M. nigrifrons*, Olive Bush Shrike *M. olivaceus*, and Sulphur-breasted Bush Shrike *M. sulfureopectus*). Plumage polymorphism is known only in certain populations of species in the 'small' group, where the predominant morphs in a particular area appear to parallel the plumage of the sympatric 'large' species (Hall et al. 1966). Nonetheless, on the basis of current plumage differences between species in the 'large' group it is hypothesized that the groups arose from a common, polymorphic ancestor. Shifting selective pressures, it is supposed, have eliminated polymorphism in the 'large' group, but some populations of the 'small' species still exhibit it.

Three allelomorphous loci are required to account for the observed patterns of colouration in the genus (Hall et al. 1966): one controlling the presence or absence of ventral carotenoid, another the colour (red/yellow) of any carotene that is present, and a third the incidence of ventral eumelanin. These dimorphisms interact with polygenic variation in plumage colour. In the 'large' group the only plumage variant Hall et al. (1966) recorded was a specimen of *M. blanchoti* from Mpanda, western Tanzania, that lacked carotene anywhere in the plumage. This does not correspond with the pattern in the 'small' group, where acaratenoidal birds have normal upperparts but little or no carotene below. Such birds, occurring in all 'small' species but the non-polymorphic *M. sulfureopectus*, have buff underparts. There is geographical variation in the extent to which dilute phaeomelanin occurs in the underparts, and, coincidentally, these acaratenoidal birds are known only from populations where ventral phaeomelanin is present; it is this phaeomelanin that gives rise to the buff colour. However, the incidence of phaeomelanin is entirely irrelevant to the dimorphism in carotene distribution. An acaratenoidal bird without ventral phaeomelanin would resemble the Bwindi *M. lagdeni*, with normal carotene above (as in the yellow tips to the inner secondaries and wing coverts) but the underparts largely white. (Note that yellow on the under tail coverts is frequently observed in acaratenoidal birds: Moreau & Southern 1958.) There is no obvious parallel in other species with the brownish-grey colour on the head of the Bwindi bird, but the 'olive' phase of *M. olivaceus* (caratenoidal) also has an exceptional crown colour, in this case olive-green.

It thus appears possible that the Bwindi bird is an example of an hitherto unknown acaratenoidal morph of *M. lagdeni*, and that the basis of this dimorphism (although not its appearance) is identical to that in the small species. As Hall et al. (1966) note, residual polymorphism in some populations of the 'large' species is to be expected on their hypothesis. Confirmation of the existence of this dimorphism in *M. lagdeni* would provide strong additional evidence that the two groups of *Malaconotus* had a single common polymorphic ancestor.

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